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Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A system for blending at least two materials, comprising:
a blend chamber that includes

a first inlet to receive a first material, the first inlet being connected to a first valve to control an amount of the first material received at the first inlet; and

a second inlet to receive a second material, the second inlet being connected to a second valve to control an amount of the second material received at the second inlet;

a recirculation line connected to the blend chamber to receive a mixture of the first material and the second material and provide the mixture of the first material and the second material back to the blend chamber;

a sensor, disposed in the recirculation line, to detect an sense the amount of the second material mixed in the mixture of the first material and the second material;

a drain port fluidly connected to the blend chamber;

an outlet fluidly connected to the blend chamber to dispense the mixture having a desired concentration of the second material in the mixture; and

a controller, connected to the sensor, and the second valve, and the drain port, responsive to the detected amount of the second material in the mixture to provide a first control signal to the second valve to control the amount of the second material received at the second inlet to achieve a the desired concentration of the second material in the mixture, and to provide a second control signal, responsive to the detected amount of the second material in the mixture being greater than the desired concentration, to dispense a portion of the mixture out the drain port.

2. (Currently Amended) The system of claim 1, wherein the recirculation line includes:

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an inlet connected to the blend chamber to receive the mixture of the first material and the second material;

an outlet connected to the blend chamber to provide the mixture of the first material and the second material back to the blend chamber; and

a pump, to receive the mixture of the first material and the second material from the inlet of the recirculation line and pump the mixture to the outlet of the recirculation line.

3. (Currently Amended) The system of claim 2, further comprising: an wherein the outlet, is connected to the recirculation line and disposed between the pump and the outlet of the recirculation line, to provide the mixture to a tool.

4. (Original) The system of claim 3, wherein the sensor is a conductivity sensor.

5. (Original) The system of claim 1, wherein the sensor is a conductivity sensor.

6. (Original) The system of claim 1, further comprising:
an outlet, connected to the recirculation line, to provide the mixture to a tool.

7. (Original) A method of blending at least two materials to a desired concentration, comprising acts of:

providing a first material in bulk to a blend chamber;

providing a flow of a second material to the blend chamber through a second inlet;

mixing the flow of the second material into the first material in the blend chamber to create a mixture;

recirculating the mixture in the blend chamber;

measuring a characteristic of the mixture during the act of recirculating; and

adjusting the flow of the second material to the blend chamber to attain the desired concentration.

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8. (Original) The method of claim 7, wherein the act of measuring a characteristic of the mixture comprises sensing a characteristic indicative of concentration.

9. (Currently Amended) The method of claim 7, wherein the act of providing the first and second materials occurs without ~~knowing the measuring a concentration of the first and second concentration materials.~~

10. (Currently Amended) The method of claim 7, wherein the act of providing the first and second materials occurs without ~~measuring a mass flow rate of the first and second materials using a mass flow controller.~~

11. (Original) The method of claim 7, further comprising draining a portion of an out of specification blend and leaving the remaining portion of the out of specification blend in the blend chamber.

12. (Original) The method of claim 11, further comprising providing an additional amount of the first and second materials.

13. (Currently Amended) A system for blending at least two components comprising:
a blend chamber having:

a first inlet for receiving a first component;

a second inlet for receiving a second component;

an outlet for delivering a mixture of the first component and the second component to a tool;

a recirculation line having an inlet and an outlet fluidly coupled to the blend chamber for a recirculation line; and

means for analyzing the mixture in the recirculation line and adjusting the rate at which the second component is added to the blend chamber to achieve a first desired concentration of the mixture for a first predetermined period of time and a second desired concentration of the mixture for a second predetermined period of time.

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14. (Currently Amended) The system of claim 13, further comprising means for correcting a batch of the mixture during operation of the system physical blending process and adjusting the rate at which a liquid chemical stream is added to the batch allowing the steam to reach the required endpoint.

15. (Currently Amended) The system of claim 14, further comprising means for adjusting the rate at which the first component is added to the blend chamber to allow the mixture to reach a concentration lower than the first desired concentration correcting an out of specification blend while blending.

16. (New) The system of claim 1, wherein the controller provides a third control signal to close the second valve in response to a signal from the sensor detecting a first concentration of the second material in the mixture; provides a fourth control signal to the second valve to remain closed for a first predetermined time period; and provides a fifth control signal to the second valve to adjust the amount of the second material received at the second inlet to achieve a second concentration of the second material in the mixture.

17. (New) The system of claim 16, wherein the controller further provides a sixth control signal to close the second valve in response to a signal from the sensor detecting the second concentration of the second material in the mixture; provides a seventh control signal to the second valve to remain closed for a second predetermined time period; and provides an eighth control signal to the second valve to adjust the amount of the second material received at the second inlet to achieve a third concentration of the second material in the mixture.

18. (New) The method of claim 7, further comprising:

interrupting the flow of the second material to the blend chamber for a first predetermined time period; and

adjusting the flow of the second material to the blend chamber to attain a second desired concentration.

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19. (New) The method of claim 18, further comprising:
interrupting the flow of the second material to the blend chamber for a second predetermined time period; and
adjusting the flow of the second material to the blend chamber to attain a third desired concentration.
20. (New) The system of claim 13, further comprising:
means for correcting an out of specification mixture.
21. (New) A system for blending at least two materials, comprising:
a blend chamber that includes
a first inlet to receive a first material, the first inlet being connected to a first valve to control an amount of the first material received at the first inlet; and
a second inlet to receive a second material, the second inlet being connected to a second valve to control an amount of the second material received at the second inlet;
a recirculation line connected to the blend chamber to receive a mixture of the first material and the second material and provide the mixture of the first material and the second material back to the blend chamber;
a sensor, disposed in the recirculation line, to detect the amount of the second material mixed in the mixture of the first material and the second material; and
a controller, connected to the sensor and the second valve, responsive to the sensor to provide a control signal to close the second valve in response to a signal from the sensor detecting a first desired concentration of the second material in the mixture; to provide a control signal to the second valve to remain closed for a first predetermined time period; and to provide a control signal to the second valve to adjust the amount of the second material received at the second inlet to achieve a second desired concentration of the second material in the mixture.
22. (New) The system of claim 21, wherein the controller further provides a control signal to close the second valve in response to a signal from the sensor detecting the second desired

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concentration of the second material in the mixture; and provides a control signal to the second valve to remain closed for a second predetermined time period; and provides a control signal to the second valve to adjust the amount of the second material received at the second inlet to achieve a third desired concentration of the second material in the mixture.

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